CP-255I

Multi-Format to HDMI Scaler

Operation Manual

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

REVISION HISTORY

VERSION NO.	DATE (DD/MM/YY)	SUMMARY OF CHANGE
VS1	25/11/11	First release
VR2	03/07/13	Input 1080i resolution @60/50
VR3	18/10/13	RS-232 Port

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1. INTRODUCTION

The Multi-Format to HDMI Scaler is designed to upscale digital/analog video signals from Composite, S-Video, PC, Component (HD) and HDMI input sources, to digital HDMI output of a wide range of HDTV and PC resolutions including 1080p and WUXGA (1920 x 1200).

As well as upscaling video, the scaler box also converts digital/analog audio signals to digital format, which can then be output either through HDMI combined with the video signal or separately via the discrete Coaxial S/PDIF output.

The Scaler has a comprehensive on-screen display (OSD) menu that allows the user to select a variety of output resolutions and adjust them for the best picture quality.

2. APPLICATIONS

- Upscale the video from standard definition sources or a PC/Laptop to a HDMI equipped display.

3. PACKAGE CONTENTS

- Multi-Format to HDMI Scaler
- Remote Control
- 1×D-Sub 15-pin Cable
- 1×Composite Video Cable (3 RCA)
- 5V/3 A DC Power Supply Adaptor
- Operation Manual

4. SYSTEM REQUIREMENTS

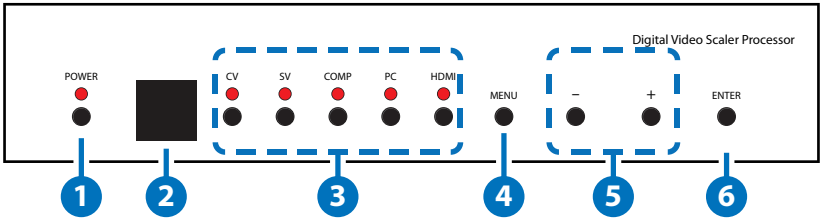
- INPUT: Composite, Component, S-Video or HDMI, or PC VGA video/audio source.
- OUTPUT: HDMI equipped TV or monitor, optional Coaxial (S/PDIF) equipped receiver/amplifier.

5. FEATURES

- HDMI, HDCP 1.1 and DVI 1.0 compliant
- Scales any PC (VGA~WUXGA) or HD (480i~1080p) resolutions to from another PC/HD resolutions
- Automatically detects the correct settings of the connected display and outputs the corresponding resolution and refresh rate, when the NATIVE output is selected
- Supports 50/60 Hz frame rate conversion
- Supports 3D motion video adaptive, 3D de-interlacing, and 3:2 / 2:2 pull-down detection and recovery
- Provides output picture adjustment on contrast, brightness, hue, saturation, sharpness, RGB (color tone) level, and aspect ratio size
- Supports high resolution input/output:
  PC: VGA, SVGA, XGA, SXGA, UXGA, WXGA, WSXGA, and WUXGA
  HDTV: 480i, 576i, 480p, 576p, 720p, 1080i and 1080p
- Supports digital and analog audio input and digital output

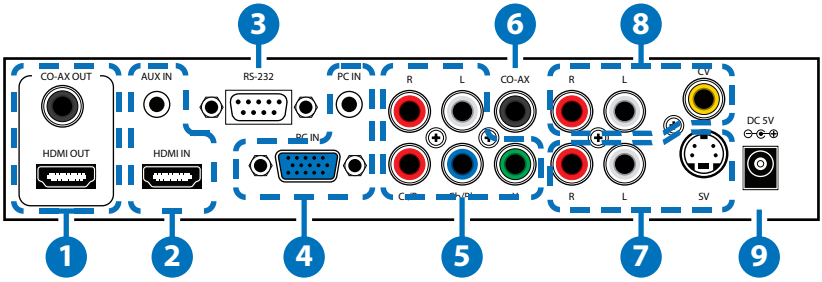
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



1. **POWER Button and LED:** Press the button power the unit on or off. When the power is turned on, the LED will illuminate.
2. **IR Window**
3. **Input Buttons and LEDs:** Press the required button (CV/SV/COMP/PC/HDMI) to select the desired input source. The LED will illuminate to indicate the corresponding input is selected.
4. **MENU Button:** Press the MENU button to bring up OSD operation menu (see section *6.3 OSD Operation* for reference.)
5. **Minus (-)/Plus (+) Buttons:** A. On the first level of OSD menu, use + and − buttons to move up/down the menu to highlight the item for selection. B. Once the desired option is selected, use + and − buttons to toggle between setting values.
6. **ENTER Button:** In the OSD menu, use the ENTER button to confirm the selection.

6.2 Rear Panel

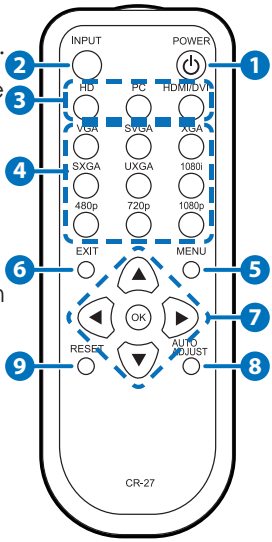


1. **HDMI OUT and COAX OUT:** Connect the HDMI OUT port to an HDMI display such as HDTV or monitor. Connect the COAXIAL OUT port (TOSLINK) to an amplifier for separate digital audio output.
2. **HDMI IN and AUX IN:** Connect the HDMI IN port to an HDMI source device such as a DVD player or set-top box or connect to a DVI source equipment such as a PC with an HDMI to DVI cable. Use the AUX IN port to input the audio signal when the video signal input through the HDMI IN port is an DVI source.
3. **RS-232:** Connect to a PC/Laptop or RS-232 control system to use RS-232 commands to control the device.
4. **PC IN and Audio IN:** Connect the D-sub 15-pin port to a PC for video signal conversion. Connect the 3.5mm phone jack port to the PC for audio signal conversion.
5. **YCbCr/YPbPr IN and L/R IN:** Connect the YCbCr/YPbPr input ports (3 RCA) to source equipment such as a DVD player or set-top box for video signal conversion. Connect the L/R audio input ports to source equipment for audio signal conversion.
6. **COAX IN:** The COAXIAL port provides the digital audio input support, and can be assigned to any of the video inputs. Once connected, it can be assigned in the OSD Menu under Audio Source Selection by selecting between Coaxial (S/PDIF) or other audio source (see section '6.4 OSD Menu' for reference).
7. **S-Video IN and L/R IN:** Connect the S-Video input port to source equipment such as a DVD player or set-top box for vido signal conversion. Connect the L/R audio input ports to source equipment for audio signal conversion.

8. **Composite Video IN and L/R IN:** Connect the Composite Video input port to source equipment such as a DVD player or Set-top box for video signal conversion. Connect the L/R audio input ports to source equipment for audio signal conversion.

9. **DC 5V:** Plug the 5V DC power supply into the unit and connect the adaptor to AC wall outlet.

6.3 Remote Control



1. **POWER:** Press the button once to power on the unit. Press again to enter standby mode.

2. **INPUT:** Press the button repeatedly to toggle through various input sources.

3. **HD, PC, HDMI/DVI:** Press the appropriate button to directly select component video, PC, or HDMI/DVI input.

4. **VGA, SVGA, XGA, SXGA, UXGA or 480p, 720p, 1080i, 1080p:** Press appropriate button to directly select the preferred output resolution. Other output resolutions that are not covered by these buttons can be selected from the OSD Menu.

5. **MENU:** Press the button to bring up the OSD main menu page.

6. **EXIT:** Press the button to exit from a sub menu or main menu.

7. **Up, Down, Left, Right and OK:** Press the Up/Down button to move the highlight bar to your desired parameter during the OSD operation. Press the Left/Right button to increase/decrease the value of a selected parameter.Press the OK (ENTER) button to confirm your selection.

8. **AUTO ADJUST:** Press the button to optimize the positioning of the picture (picture centering) on the screen.

9. **RESET:** Press the button to reset the unit's firmware setting to the factory default value.

6.4 OSD Menu

MAIN MENU	SUBMENU	ADJUSTMNET
VIDEO	**PICTURE MODE**	USER, STANDARD, VIVID, MOVIE
	CONTRAST	0~100 (50)
	BRIGHTNESS	0~100 (45)
	HUE	0~100 (50)
	SATURATION	0~100 (60)
	SHARPNESS	0~100 (32)
	SCALE	OVERSCAN, UNDERSCAN, LETTERBOX, PANSCAN, FULL
	NR	LOW, MIDDLE, HIGH, OFF
	EXIT	-
COLOR	**COLOR TONE**	USER, NORMAL, WARM, COOL
	RED	0~100 (47)
	GREEN	0~100 (47)
	BLUE	0~100 (47)
	EXIT	-
OUTPUT	**-**	NATIVE, VGA, SVGA, XGA, SXGA, UXGA, 480I, 480P, 720P@60 HZ, 1080I@30 HZ, 1080P@60 HZ, 576I, 576P, 720P@50 HZ, 1080I@25 HZ, 1080P@50HZ, WXGA, WSXGA, WUXGA
OSD	**HPOSITION**	0~100 (50)
	VPOSITION	0~100 (50)
	TIMER (SEC)	0~100 (10)
	TRANSP	0~8 (5)
	EXIT	-

MAIN MENU	SUBMENU	ADJUSTMNET
AUDIO	**SOURCE**	HDMI, L/R, COAXIAL
	DELAY	OFF, 40ms, 110ms, 150ms
	SOUND	ON, MUTE
	EXIT	-
INFORMATION	**-**	SOURCE (Input interface)
		INPUT (Input resolution)
		OUTPUT (Output resolution)
		VERSION (Firmware version)
EXIT	**-**	-

Note: Items in brackets are the default values for those settings.

6.5 RS-232 Pin Assignment

HDMI SCALER			REMOTE CONTROL	
PIN	**ASSIGNMENT**		**PIN**	**ASSIGNMENT**
1	NC		1	NC
2	TXD	▶	2	RXD
3	RXD	◀	3	TXD
4	NC		4	NC
5	GND		5	GND
6	NC		6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

Baud Rate: 19200 bps
Data Bit: 8-bits
Parity: None
Stop Bit: 1-bit

6.6 RS-232 Setting Commands

COMMAND	RESPONSE	DESCRIPTION
S POWER 0	POWER OFF	Power OFF the unit
S POWER 1	POWER ON	Power ON the unit
S SOURCE 0	SOURCE CV	Set the source to the Composite Video input
S SOURCE 1	SOURCE SV	Set the source to the S-Video input
S SOURCE 2	SOURCE COMP	Set the source Component Video input
S SOURCE 3	SOURCE PC	Set the source to the PC input
S SOURCE 4	SOURCE HDMI	Set the source to the HDMI input
S OUTPUT 0	OUTPUT NATIVE	Set the output resolution to the display's Native resolution
S OUTPUT 1	OUTPUT VGA	Set the output resolution to VGA
S OUTPUT 2	OUTPUT SVGA	Set the output resolution to SVGA
S OUTPUT 3	OUTPUT XGA	Set the output resolution to XGA
S OUTPUT 4	OUTPUT SXGA	Set the output resolution to SXGA
S OUTPUT 5	OUTPUT UXGA	Set the output resolution to UXGA
S OUTPUT 6	OUTPUT 480I	Set the output resolution to 480i
S OUTPUT 7	OUTPUT 480P	Set the output resolution to 480p
S OUTPUT 8	OUTPUT 720P	Set the output resolution to 720p@60 Hz
S OUTPUT 9	OUTPUT 1080I	Set the output resolution to 1080i@60 Hz
S OUTPUT 10	OUTPUT 1080P	Set the output resolution to 1080p@60 Hz

COMMAND	RESPONSE	DESCRIPTION
S OUTPUT 11	OUTPUT 576I	Set the output resolution to 576i@60 Hz
S OUTPUT 12	OUTPUT 576P	Set the output resolution to 576p@60 Hz
S OUTPUT 13	OUTPUT 720P	Set the output resolution to 720p@50 Hz
S OUTPUT 14	OUTPUT 1080I50	Set the output resolution to 1080i@50 Hz
S OUTPUT 15	OUTPUT 1080P50	Set the output resolution to 1080p@50 Hz
S OUTPUT 16	OUTPUT WXGA	Set the output resolution to WXGA resolution
S OUTPUT 17	OUTPUT WSXGA	Set the output resolution to WSXGA
S OUTPUT 18	OUTPUT WUXGA	Set the output resolution to WUXGA
S SIZE 0	SIZE FULL	Set the output size to FULL
S SIZE 1	SIZE OVERSCAN	Set the output size to OVERSCAN
S SIZE 2	SIZE UNDERSCAN	Set the output size to UNDERSCAN
S SIZE 3	SIZE LETTERBOX	Set the output size to LETTERBOX
S SIZE 4	SIZE PANSCAN	Set the output size to PANSCAN
S PICTUREMODE 0	PICTUREMODE STANDARD	Set the picture mode to STANDARD
S PICTUREMODE 1	PICTUREMODE MOVIE	Set the picture mode to MOVIE
S PICTUREMODE 2	PICTUREMODE VIVID	Set the picture mode to VIVID
S PICTUREMODE 3	PICTUREMODE USER	Set the picture mode to USER
S CONTRAST 0~100	CONTRAST 0~100 (50)	Adjust the CONTRAST value

COMMAND	RESPONSE	DESCRIPTION
S BRIGHTNESS 0~100	BRIGHTNESS 0~100 (45)	Adjust the BRIGHTNESS value
S HUE 0~100	HUE 0~100 (50)	Adjust the HUE value
S SATURATION 0~100	SATURATION 0~100 (60)	Adjust the SATURATION value
S SHARPNESS 0~100	SHARPNESS 0~100 (32)	Adjust the SHARPNESS value
S NR 0	NR OFF~HIGH	Set the noise reduction to OFF
S NR 1	NR LOW	Set the noise reduction to LOW
S NR 2	NR MIDDLE	Set the noise reduction to MIDDLE
S NR 3	NR HIGH	Set the noise reduction to HIGH
S PCHPOSITION 0~100	PCHPOSITION 0~100	Adjust the value for the PC horizontal position setting
S PCVPOSITION 0~100	PCVPOSITION 0~100	Adjust the value for the PC vertical position setting
S PCCLOCK 0~100	PCCLOCK 0~100	Adjust the value for the PC mode clock setting
S PCPHASE 0~63	PCPHASE 0~63	Adjust the value for the PC mode phase setting
S COLORTEMP 0	COLORTEMP NORMAL	Set the color temperature to NORMAL
S COLORTEMP 1	COLORTEMP WARM	Set the color temperature to WARM
S COLORTEMP 2	COLORTEMP COOL	Set the color temperature to COOL
S COLORTEMP 3	COLORTEMP USER	Set the color temperature to USER
S RED 0~100	RED 0~100 (47)	Adjust the value for the RED color setting
S GREEN 0~100	GREEN 0~100 (47)	Adjust the value for the GREEN color setting

COMMAND	RESPONSE	DESCRIPTION
S BLUE 0~100	BLUE 0~100 (47)	Adjust the value for the BLUE color setting
S OSDHPOSITION 0~100	OSDHPOSITION 0~100 (50)	Set the value to adjust the horizontal position of the OSD menu
S OSDVPOSITION 0~100	OSDVPOSITION 0~100 (50)	Set the value to adjust the vertical position of the OSD menu
S OSDTIMEOUT 0~100	OSDTIMEOUT 0~100 (10)	Set the value for the OSD menu timeout
S OSDBACKGROUND 0~8	OSDBACKGROUND 0~8 (5)	Set the value for the OSD menu background
S AUDIOMUTE 0	AUDIOMUTE OFF	Set the audio mute to OFF
S AUDIOMUTE 1	AUDIOMUTE ON	Set the audio mute to ON
S AUDIODELAY 0	AUDIODELAY OFF	Set the AUDIO DELAY to OFF
S AUDIODELAY 1	AUDIODELAY 40MS	Set the AUDIO DELAY to 40ms
S AUDIODELAY 2	AUDIODELAY 110MS	Set the AUDIO DELAY to 110ms
S AUDIODELAY 3	AUDIODELAY 150MS	Set the AUDIO DELAY to 150ms
S RESET 1	RESET ON	System Reset

Note: Items in brackets are the default values for those settings.

6.7 RS-232 Status Commands

COMMAND	RESPONSE	DESCRIPTION
R POWER	POWER ON/OFF	Reports the current POWER status
R SOURCE	SOURCE CV~HDMI	Report the current SOURCE
R OUTPUT	OUTPUT NATIVE~WUXGA	Reports the current OUTPUT resolution
R SIZE	SIZE FULL~PANSCAN	Reports the current SIZE mode
R PICTUREMODE	PICTUREMODE STANDARD~USER	Reports the picture mode
R CONTRAST	CONTRAST 0~100	Reports the value (1~100) of the CONTRAST setting
R BRIGHTNESS	BRIGHTNESS 0~100	Reports the value (1~100) of the BRIGHTNESS setting
R HUE	HUE 0~100	Reports the value (1~100) of the HUE setting
R SATURATION	SATURATION 0~100	Reports the value (1~100) of the SATURATION setting
R SHARPNESS	SHARPNESS 0~100	Reports the value (1~100) of the SHARPNESS setting
R NR	NR OFF~HIGH	Reports the status of the NOISE REDUCTION setting
R PCHPOSITION	PCHPOSITION 0~100	Reports the value (1~100) of the PC horizantal position setting
R PCVPOSITION	PCVPOSITION 0~100	Reports the value (1~100) of the PC vertical position setting
R PCCLOCK	PCCLOCK 0~100	Reports the value (1~100) of the PC CLOCK setting
R PCPHASE	PCPHASE 0~63	Reports the value (1~63) of the PC PHASE setting
R COLORTEMP	COLORTEMP NORMAL~USER	Reports the current color temperature setting
R RED	RED 0~100	Reports the value (1~100) of the RED color setting
R GREEN	GREEN 0~100	Reports the value (1~100) of the GREEN color setting

COMMAND	RESPONSE	DESCRIPTION
R BLUE	BLUE 0~100	Reports the value (1~100) of the RED color setting
R OSDHPOSITION	OSDHPOSITION 0~100	Reports the value (1~100) of the OSD MENU horizontal position setting
R OSDVPOSITION	OSDVPOSITION 0~100	Reports the value (1~100) of the OSD MENU horizontal position setting
R OSDTIMEOUT	OSDTIMEOUT 0~100	Reports the value (1~100) of the OSD MENU TIMEOUT setting
R OSDBACKGROUND	OSDBACKGROUND 0~8	Reports the value (1~8) of the OSD MENU BACKGROUND setting
R AUDIOMUTE	AUDIOMUTE OFF~ON	Reports the current AUDIOMUTE status
R AUDIODELAY	AUDIODELAY OFF~150ms	Reports the current AUDIO DELAY status

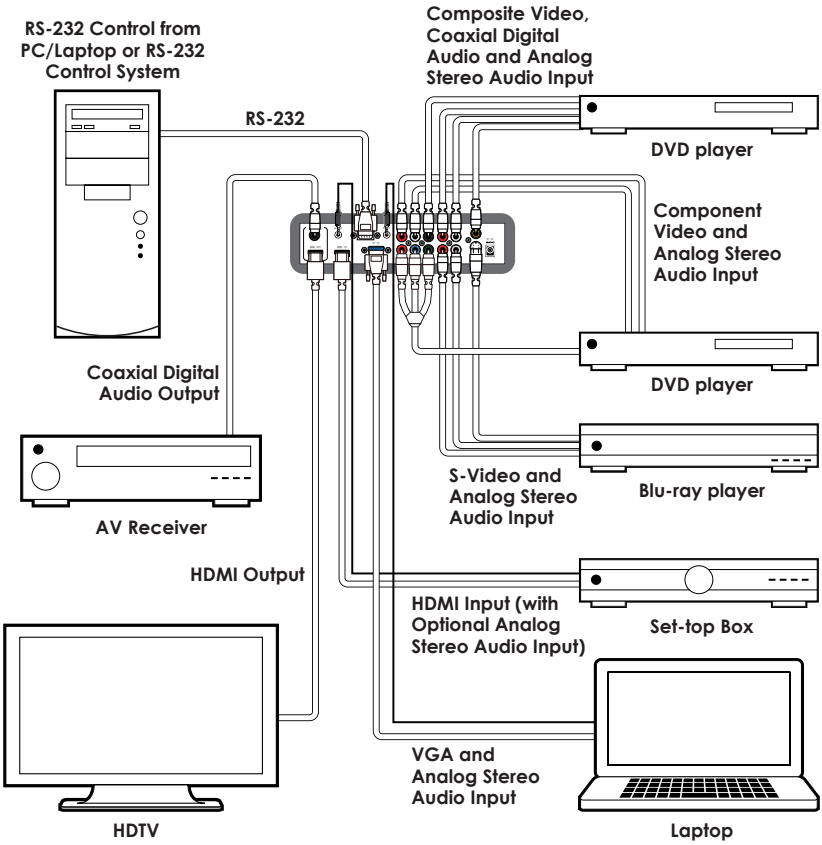
6.8 Resolution Supports

INPUT / RESOLUTION	Component Video	VGA	HDMI/DVI	OUTPUT / RESOLUTION	HDMI/DVI
480i/576i	●	-	*	480i/576i	*
480p/576p	●	●	●	480p/576p	●
720p@50/60 Hz	●	●	●	720p@50/60 Hz	●
1080i@50/60 Hz	●	-	●	1080i@25/30 Hz	●
1080p@50/60 Hz	●	●	●	1080p@50/60 Hz	●
VGA@60/72/75/85 Hz	-	●	●	VGA@60/72/75/85 Hz	●
SVGA@56/60/72/75/85 Hz	-	●	●	SVGA@56/60/72/75/85 Hz	●
XGA@60/70/75/85 Hz	-	●	●	XGA@60/70/75/85 Hz	●
SXGA@60/72/75/85 Hz	-	●	●	SXGA@60/72/75//85 Hz	●
UXGA@60 Hz	-	●	●	UXGA@60 Hz	●
WXGA@60 Hz (1280×800)	-	●	●	WXGA@60 Hz (1280×800)	●
WSXGA@60 Hz (1650×1050)	-	●	●	WSXGA@60 Hz (1650×1050)	●
WXGA@60 Hz (1920×1200)	-	●	●	WXGA@60 Hz (1920×1200)	●

*480i@30×2/576i@30×2

*480i@30×2/576i@30×2

7. CONNECTION DIAGRAM


RS-232 Control from PC/Laptop or RS-232 Control System
RS-232
Composite Video, Coaxial Digital Audio and Analog Stereo Audio Input
DVD player
Component Video and Analog Stereo Audio Input
DVD player
Coaxial Digital Audio Output
AV Receiver
S-Video and Analog Stereo Audio Input
Blu-ray player
HDMI Output
HDMI Input (with Optional Analog Stereo Audio Input)
Set-top Box
VGA and Analog Stereo Audio Input
HDTV
Laptop

8. SPECIFICATIONS

Video Bandwidth	1.65 Gbps (Single-link)
Input Ports	1×HDMI, 1×VGA (D-sub 15-pin), 1×Component Video(3 RCA), 1×Composite Video, 1×S-Video, 1×Coaxial (TSOLINK), 2×3.5mm Phone Jack, 3×L/R (2 RCA), 1×RS-232 (Control)
Output Ports	1×HDMI, 1×Coaxial (TSOLINK)
Power Supply	5 V/3 A DC (US/EU Standards, CE/FCC/UL Certified)
Dimensions	215 mm (W)×154 mm (D)×47 mm (H)
Weight	1,000 g
Chassis Material	Plastic
Color	Black
Operating Temperature	0 ˚C ~ 40 ˚C / 32 ˚F ~ 104 ˚F
Storage Temperature	−20 ˚C ~ 60 ˚C / −4 ˚F ~ 140 ˚F
Relative Humidity	20 ~ 90% RH (non-condensing)

9. ACRONYMS

ACRONYM	COMPLETE TERM
COMP	Component Video
CV	Composite Video
DVI	Digital Visual Interface
HDMI	High-Definition Multimedia Interface
IR	Infrared
NR	Noise Reduction
NTSC	National Television System Committee
OSD	On-screen Display (Menu)
PAL	Phase Alternating Line
SV	S-Video
TOSLINK	Toshiba Link
UXGA	Ultra Extended Graphics Array
VGA	Video Graphics Array
XGA	Video Graphics Array
WUXGA	Wide Ultra Extended Graphics Array

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